

# 31<sup>st</sup> Student Research Day & Industry Open House

Friday, April 29, 2016  
9am – 5pm  
Science & Research 1  
University of Houston  
Houston, Texas 77204



## SCHEDULE OF EVENTS

*All activities are located in Science & Research Building 1*

<b>REGISTRATION</b> (SR1, 2 <sup>nd</sup> Floor Lobby) .....	<b>8:30-9:00</b>
<b>ORAL PRESENTATIONS</b> .....	<b>9:00 – 12:15</b>
Session A (SR1, Room 634).....	pg. 2
Session B (SR1, Room 223).....	pg. 3
<b>LUNCH</b> All welcome (SR1, 2 <sup>nd</sup> Floor Lobby).....	<b>12:15-1:00</b>
<b>STUDENT POSTER SESSION</b> (SR1, Corridors) <b>1:15-3:30</b>	
Undergraduate Students (1 <sup>st</sup> Floor).....	pg. 4
Beginning Graduate Students (4 <sup>th</sup> Floor) .....	pg. 6
Advanced Graduate Students (2 <sup>nd</sup> & 3 <sup>rd</sup> Floor) .....	pg. 8
<b>EAS LAB TOURS</b> .....	<b>1:30 and 2:30</b>
(Meeting place SR1, 2nd Floor Lobby ).....	pg. 10
<b>AGL VIBROSEIS AND MOBILE AIR QUALITY LAB DEMO</b>	
(Outside SR1) .....	<b>3:30-4:00</b>
<b>AWARD CEREMONY</b> (SR1, Room 117).....	<b>4:00-5:15</b>
<b>GROUP PHOTO</b> (in front of SR1).....	<b>5:15</b>
<b>EAS FACULTY-STUDENT-ALUMNI-INDUSTRY</b>	
<b>HAPPY HOUR</b> .....	<b>5:30</b>
<b>McGonigal's Mucky Duck</b> (2425 Norfolk, 77098)	

**\*\* All are invited \*\***

# 31<sup>st</sup> Student Research Day & Industry Open House

## GRADUATE STUDENT COMMITTEE

Elita De Abreu (Committee Chair)  
 Abbie Corbett  
 Atif Hariz  
 Denise Furtado  
 Jaymason Shelton  
 Pin Li  
 Proma Bhattacharyya  
 Riddhi Dave  
 Wenyuan Zhang

## FACULTY RESEARCH DAY ADVISOR

Dr. Regina Capuano

## STAFF ADVISOR

Hannah Walker  
 Jay Krishnan  
 Jim Parker

**EVENT PHOTOGRAPHER:** Tuhin Dey

Special thanks to all our volunteers!!

# RESEARCH TALKS: SESSION A

**SR1, Room 634**

Time	Speaker	Title
9:00	Vanessa Caicedo	COMPARISON OF AEROSOL LIDAR RETRIEVAL METHODS FOR BOUNDARY LAYER HEIGHTS
9:15	Ebrahim Eslami	INTEGRATED AIR QUALITY MODEL STUDY WITH FOCUS ON HEALTH AND COST IMPACTS
9:30	Laura Margaret Judd	OZONE PHOTOCHEMISTRY TRENDS IN THE HOUSTON SHIP CHANNEL
9:45	Alexander Kotsakis	IMPACT OF SYNOPTIC SCALE FEATURES ON THE YEAR-TO-YEAR VARIABILITY OF OZONE EXCEEDANCES IN SOUTHEAST TEXAS
10:00	Lei Liu	EMISSION ESTIMATES OF TRACE GASES AND VOLATILE ORGANIC COMPOUNDS FROM A CONTROLLED GRASSLAND FIRE EXPERIMENT
10:15	Amir H Souri	A 15-YEAR CLIMATOLOGY OF WIND PATTERN IMPACTS ON SUFACE OZONE IN HOUSTON, TEXAS
10:30	COFFEE BREAK	
10:45	Ezzedeen Alfataierge	A COMPARISON OF NEW UPSCALING METHODS DERIVED FROM THE SIMPLE AVERAGING METHOD WITH THE BACKUS AVERAGING METHOD
11:00	Kirstie LaFon Haynie	TECTONIC DRIVERS OF THE WRANGELL BLOCK FOREARC SLIVER AND SLIP ON THE DENALI FAULT
11:15	Anna Krylova	VELOCITY DISPERSION AND ATTENUATION OF A WAVE PROPAGATING IN A FRACTURED MEDIA
11:30	Jiaxuan Li	IN SITU SEISMIC ANISOTROPY IN THE VICINITY OF GLOBAL DEEP EARTHQUAKES
11:45	Xuan Qin	ROCK PHYSICS MODELING OF SHALE DURING SMECTITE-TO-ILLITE TRANSITION
12:00	Wenyuan Zhang	THERMAL HISTORY AND PROVENANCES OF DRUMMOND BASIN, QUEENSLAND (AUSTRALIA) FROM U/PB AND (U-TH)/HE DATA

# RESEARCH TALKS: SESSION B

SR1, Room 223

Time	Speaker	Title
9:00	Peter Anderson	DOOR POINT: CRETACEOUS VOLCANISM IN THE GULF OF MEXICO
9:15	Nicolas Christof Bartschi	DISCRIMINATING SEDIMENT SUPPLY VERSUS ACCOMMODATION CONTROLS ON LATE CRETACEOUS FORELAND BASIN STRATIGRAPHIC ARCHITECTURE IN THE BOOK CLIFFS, UTAH USING DETRITAL ZIRCON DOUBLE DATING
9:30	Deborah Raeann Bradley	MODELING OF RARE EARTH ELEMENT ZONATION IN HIGH PRESSURE/LOW TEMPERATURE (HP/LT) GARNET FROM THE MOTAGUA FAULT ZONE IN CENTRAL GUATEMALA.
9:45	Suoya Fan	LATE PALEOZOIC TO MESOZOIC TECTONIC EVOLUTION OF XAINZA AREA IN THE NORTH OF LHASA TERRANE, TIBET: CONSTRAINTS FROM FIELD OBSERVATION, PETROGRAPHIC ANALYSIS, AND ZIRCON U-PB GEOCHRONOLOGY
10:00	Tithi Ghosh	INDICATION OF HETEROGENEOUS MELT DEPLETION BENEATH NORTHERN MARIANA ARC
10:15	Charles Ryan Jeffcoat	COSMOCHEMISTRY OF A REFRACTORY INCLUSION FROM THE ALLENDE METEORITE: EK-459-7-2
10:30	COFFEE BREAK	
10:45	Yuribia Munoz	SEAFLOOR GEOMORPHOLOGY OF WESTERN ANTARCTIC PENINSULA FJORDS
11:00	Unal Okyay	GROUND-BASED HYPERSPECTRAL IMAGE ANALYSIS FOR ROCK CHEMISTRY, PENECONTEMPORANEOUS CHERT, AND DIAGENETIC TRIPOLITE DEVELOPMENT IN THE LOWER MISSISSIPPIAN (OSAGEAN SERIES) ROCKS, SOUTHWESTERN MISSOURI
11:15	Ramya Ravindranathan	IDENTIFYING THE PRODUCTIVE LAYER FROM THE DOWNSCALED VELOCITIES
11:30	Lillian Aurora Schaffer	WATER CONTENTS OF OFF-CRATON PERIDOTITES AND THE INFLUENCE OF MELTING
11:45	Kurt Sundell	EOCENE PALEOELEVATION OF THE PERUVIAN WESTERN CORDILLERA FROM FLEXURAL MODELING ALTIPLANO FORELAND BASIN STRATIGRAPHY
12:00	Dustin Patrick Villarreal	ASSESSING PRE-CENOZOIC SHORTENING OF THE SOUTH PAMIR

# UNDERGRADUATE STUDENT POSTERS

SR1, 1<sup>st</sup> Floor Corridor

Presenter	Title	No.
Rasheed Abioye Ajala	GRAVITY MODELLING OF THE FLEXURAL RESPONSE OF LOADING OF THE NIGER AND AMAZON DELTAS ONTO THEIR UNDERLYING THINNED CONTINENTAL AND OCEANIC CRUST	1
Ashley Nicole Boyd	PROVENANCE ANALYSIS OF LATE CRETACEOUS SANDSTONES IN BOOK CLIFFS, UTAH	2
Callum James Byers	TECTONIC GEOMORPHOLOGY OF LARGE NORMAL FAULTS BOUNDING THE CUSCO RIFT BASIN WITHIN THE SOUTHERN PERUVIAN ANDES	3
Benjamin Chang	VISUALIZING SUBDUCTION ZONES WITH 3D IMMERSIVE VIRTUAL REALITY	4
Matthew Kupecz Copley	GRAVITY AND BASIN MODELLING OF EAST AFRICA-MADAGASCAR CONJUGATE MARGINS: IMPLICATIONS FOR SOURCE ROCK MATURITY IN UNDEREXPLORED OFFSHORE BASINS	5
Wanda E. Crupa	MEASURING TECTONIC ACTIVITY USING GEOMORPHOLOGY ALONG THE CHAMAN FAULT SYSTEM	6
Marie Nelsy Kouassi	TESTING TWO MODELS OF THE EVOLUTION OF THE CARIBBEAN PLATE THROUGH COMPILATION OF JURASSIC TO RECENT RADIOMETRIC AGE DATES	7
David F. Lankford-Bravo	DEFINING THE CONTINENT-OCEAN BOUNDARY AND ITS STRUCTURAL ROLE IN THE NORTHWESTERN GULF OF MEXICO FROM INTEGRATION OF SEISMIC REFLECTION AND GRAVITY DATA	8
Helena Manuel	X-RAY FACIES ANALYSIS OF MARINE SEDIMENT CORES COLLECTED NEAR RETREATING AND ADVANCING GLACIERS FROM THE WESTERN ANTARCTIC PENINSULA	9

# UNDERGRADUATE STUDENT POSTERS

## SR1, 1<sup>st</sup> Floor Corridor

Presenter	Title	No.
Sabrina Nicole Martinez	CALCULATION OF REGIONAL GEOMORPHIC INDICES TO CONSTRAIN THE MECHANISMS OF TECTONIC UPLIFT AND ACTIVE DEFORMATION OF THE ISLAND OF PUERTO RICO	10
Ane Slabic	URANIUM, THORIUM, AND LEAD ISOTOPE GEOCHEMISTRY OF PETROLEUM SOURCE ROCKS: AN EXAMPLE FROM THE EAGLE FORD GROUP, TEXAS	11
Andrew Richard Steier	REVISED PLATE TECTONIC RECONSTRUCTIONS OF EARLY OPENING AND OCEANIC SPREADING HISTORY OF THE SOUTH ATLANTIC OCEAN	12



Undergraduate, Graduate and Professors at Geophysics Field Camp.

# BEGINNING GRADUATE STUDENT POSTERS

## SR1, 4<sup>th</sup> Floor Corridor

Presenter	Title	No.
Ross Anthony Andrea	CHARACTERIZING FRACTURE NETWORKS IN A NORMAL FAULT SPLAY ZONE	1
Patrick Blood	THE OPTIMIZATION OF EXTREME RAINFALL PREDICTION UTILIZING THE WEATHER RESEARCH AND FORECAST - ENVIRONMENTAL MODELING SYSTEM	2
Abigail Corbett	USING AIRS SATELLITE DATA TO MEASURE HOW THE ENSO EFFECTS CH4	3
Elena Ermolaeva	P-P AND SV-P WAVE RADIATION FROM VERTICAL FORCE SOURCE	4
Ebrahim Eslami	WAVELET ANALYSIS: A POST-PROCESSING TOOL IN AIR QUALITY MODELING SYSTEM	5
Andrew Russell Gilfillan	EARLY STAGE ORTHOPYROXENE BEARING GABBROS FROM HESS DEEP: THE INTEGRATED STORY OF AN ULTRA FAST SPREADING CENTER	6
Atif Hariz	HURRICANE DEPOSITS IN SOUTH TEXAS- PADRE ISLAND AND BAFFIN BAY	7
Pin Lin	SEISMIC STRATIGRAPHY AND STRUCTURE OF A LATE JURASSIC, SOUTHEASTWARD-PROPAGATING ZONE OF RIFTING AND OCEANIC SPREADING SEPARATING CONTINENTAL CRUST OF FLORIDA AND YUCATAN, SOUTHEASTERN GULF OF MEXICO	8
Virginia Alonso De Linaje	MULTI-SCALE MAPPING OF DIAGENETIC PROCESSES IN SANDSTONE USING IMAGE SPECTROSCOPY. A CASE STUDY OF THE FRONTIER FORMATION (WYOMING, USA)	9
Crystal Marie Saadeh	PLIOCENE ONSET OF ECCENTRICITY CYCLES IN THE ZHADA BASIN, SW TIBETAN PLATEAU	10

# ADVANCED GRADUATE STUDENT POSTERS

## SR1, 2<sup>nd</sup> Floor Corridor

Presenter	Title	No.
Olufemi Akanbi	SEISMIC DISCONTINUITIES BENEATH THE SOUTHWEST UNITED STATES FROM S- RECEIVER FUNCTIONS	1
Peter Anderson	TERRAELM: TEACHING EARTH SCIENCE TO THE NOVICE	2
Proma Bhattacharyya	SUBSURFACE ARCHITECTURE STUDY OF CHANNEL BELT DEPOSITS INTEGRATING FIELD DATA WITH AIRBORNE LIDAR AND GPR IN THE FERRON SANDSTONE, HANKSVILLE, UTAH	3
Kivanc Biber	QUANTITATIVE CHARACTERIZATION OF SHALES WITHIN TIDALLY-INFLUENCED FLUVIAL VALLEY FILL DEPOSITS OF THE FERRON SANDSTONE, EASTERN UTAH - IMPLICATIONS FOR HYDROCARBON EXPLORATION	4
Luis Carlos Carvajal	NEW EVIDENCE FOR INTRAPLATE DEFORMATION IN THE WESTERN CARIBBEAN SEA: GRAVITY, MAGNETIC, EARTHQUAKE, TOMOGRAPHY, AND SEISMIC DATA EVIDENCE FOR AN ACTIVE MICROPLATE BOUNDARY ALONG THE SAN ANDRES RIFT	5
Xinyang Chen	SILICON ISOTOPE COMPOSITION OF UNGROUPED ACHONDRITE NORTHWEST AFRICA 7325	6
Elita De Abreu	WELL LOG LITHOLOGY DISCRIMINATION USING ELASTIC ATTRIBUTES ONLY	7
Naila Dowla	GRAVITY COMPARISON OF OFFSHORE FLORIDA AND THE BLAKE PLATEAU AND ITS WEST AFRICAN CONJUGATE MARGIN	8
Jannatul Ferdous	BASALTIC SHERGOTTITE NWA 856: DIFFERENTIATION OF A MARTIAN MAGMA	9

# ADVANCED GRADUATE STUDENT POSTERS

## SR1, 2<sup>nd</sup> Floor Corridor

Presenter	Title	No.
Mckensie Lynn Gelber	WATER OF THE CANADIAN CORDILLERA AND SLAVE CRATON LITHOSPHERIC MANTLE	10
Shenelle Kia Cherise Gomez	DEEP STRUCTURE OF THE TOBAGO-BARBADOS RIDGE, LESSER ANTILLES, INFERRED FROM GRAVITY AND SEISMIC REFRACTION DATA	11
Ismot Jahan	FAULT DETECTION USING PRINCIPLE COMPONENT ANALYSIS: A CASE STUDY IN THE BAKKEN FORMATION	12
Angela Kao	IMPACT OF DROUGHT ON CO <sub>2</sub>	13
Shuting Yang	CHARACTERIZE METHANE SOURCES IN HOUSTON AND THE BARNETT SHALE AREA USING $\Delta^{13}CH_4$	14



Undergraduate Field Methods class, Big Bend, TX.

# ADVANCED GRADUATE STUDENT POSTERS

## SR1, 3<sup>rd</sup> Floor Corridor

Presenter	Title	No.
Andrew G. Kerekgyarto	STABLE AND RADIOGENIC MAGNESIUM ISOTOPE STUDY OF TWO PETROGRAPHICALLY SIMILAR B1 CAIS	15
Diana Krupnik	STUDY OF DIAGENETIC FEATURES IN UPPER ALBIAN RUDIST BUILDUPS OF THE EDWARDS FORMATION USING GROUND-BASED HYPERSPECTRAL IMAGING AND TERRESTRIAL LASER SCANNING	16
Ruixue Lei	EVALUATION OF WRF/CHEM PLANETARY BOUNDARY LAYER PARAMETERIZATIONS AND ITS IMPACTS ON O3 SIMULATION FOR DISCOVER-AQ 2013	17
Stephen Leslie	STRUCTURAL ANALYSIS OF THE TAYRONA SOUTHERN CARIBBEAN DEFORMED BELT, OFFSHORE GUAJIRA PENINSULA, COLOMBIA	18
Luchen Li	SEISMIC IMAGING OF THE MANTLE WEDGE USING PRESTACK KIRCHHOFF MIGRATION	19
Yipeng Li	THE ADIABATIC MELTING OF IMPURE MANTLE: A POTENTIAL PETROGENETIC MECHANISM FOR INTRAPLATE OIB TYPE MAGMA DURING OROGENIC STRETCHING	20
Xiang Ling	MANTLE MIXING: IMPLICATION FROM CENTRAL LENA TROUGH K-RICH BASALTS IN ARCTIC OCEAN	21
Patrick Loureiro	ALONG-STRIKE VARIATIONS IN CRUSTAL ARCHITECTURE OF THE CONJUGATE MARGINS OF BRAZIL AND ANGOLA IN THE CENTRAL SOUTH ATLANTIC	22
Sharif M Morshed	HERTZ-MINDLIN CONTACT MODEL FOR BIOT MEDIA	23

# ADVANCED GRADUATE STUDENT POSTERS

## SR1, 3<sup>rd</sup> Floor Corridor

Presenter	Title	No.
Kyle Robert Reuber	BASEMENT CONTROLS ON ALONG-STRIKE VARIABILITY OF THE VOLCANIC MARGINS OF URUGUAY AND SOUTHERN BRAZIL INFERRED FROM DEEP-PENETRATION SEISMIC REFLECTION DATA	24
Tyson Michael Smith	LATE PALEOZOIC EVOLUTION OF THE GREATER COLORADO TROUGH: LINKING SOURCE TO SINK IN THE ANCESTRAL ROCKY MOUNTAINS	25
Lei Sun	GROUND-BASED HYPERSPECTRAL REMOTE SENSING AND TERRESTRIAL LASER SCANNING OF THE EAGLE FORD FORMATION	26
Lucia Torrado	LATE CRETACEOUS TO RECENT PALEO GEOGRAPHY AND SEQUENCE STRATIGRAPHY OF THE NICARAGUAN PLATFORM, WESTERN NICARAGUAN RISE: CONTROLS ON HYDROCARBON SOURCES, RESERVOIRS AND SEALS	27



Graduate students volunteering at Houston Geological Society Earth Science Celebration at Houston Museum of Natural Sciences.

# EAS LAB TOURS

## Front of SR1

### Mobile Air Quality Lab (MAQL)

**Location:** front of SR1

**Function:** The University of Houston MAQL is comprised of a large fiberglass truck body in the bed of a one-ton crew cab pickup truck. While the volume of the truck body is relatively small, the instrumentation installation was engineered to optimize the space and allow for the full suite of measurements to be performed. The truck suspension was converted to an air-bag type suspension to reduce shock and vibrations that could impact instrument performance. Integrated in the shell are three air-conditioning systems with 38,000 BTU cooling capacity, allowing for operation of instrumentation during summer months. The truck and shell are wired to distribute power from either a generator while in motion or from a 50A recreational vehicle power outlet for stationary measurements. The ambient trace gas sample air is drawn through an inlet box that houses valves, converters, and power supplies for sampler configuration and calibration. The ambient aerosol is segregated by a PM2.5 cyclone inlet and transmitted to the aerosol analytical instrumentation through a 3/8-in. copper tubing inlet. The trace gas inlet box, aerosol inlet, and meteorological sensors are mounted to the end of a 12-foot articulating arm that allows the MAQL to measure from approximately six feet above the ground while in motion and approximately eighteen feet with the arm raised for stationary measurements. Additionally, the MAQL is equipped with wired and wireless network, dual 4G cellular internet connections, four (front, rear, left, and right) high-definition cameras for identification of emission sources and characterization of local conditions, one hemispheric rooftop camera for cloud condition documentation, perimeter lighting for nighttime operations, and front and rear strobe lights for increased visibility. Scientists ride in the cab of the truck and connect to their instruments using tablets and laptops via the on-board network. Other scientists also can monitor the data, instruments, and video outputs remotely in real-time using desktop sharing software.

**Host:** Dr. James Flynn

**Research Staff:** Dr. Matt Erickson, Sergio Alvarez

# EAS LAB TOURS

## SR1, Rm 103 and 105

### Center for Petroleum Geochemistry (CPG)

**Location:** SR1, Rm 103 and 105

**Function:** CPG lab has a variety of instruments from simple TOC analyzers; RockEval II-Plus and RockEval-6 source rock analyzers; oil and gas extraction and characterization capabilities; a highly advanced suite of molecular and stable-isotope geochemistry tools including natural-gas analyzers, GC/MS; GC/MS/MS; micropyrolysis/GC/MS; GC/IRMS; EA/IRMS analyzers, and diverse organic petrography capabilities. Visit our website for a comprehensive list of analytical capabilities. This suite of capabilities distinguishes us as the most well-equipped academic petroleum-geochemistry lab in the country.

**Faculty host:** Dr. Adry Bissada, Dr. Tom Malloy

**Student host:** Mei Mei (PhD)

**Research staff:** Tao Sun, Jingqiang Tan, Mike Darnell, Ewa Szymczyk, Maria Gutierrez, Bryan Gunawan

**Website:** <http://cpg.uh.edu/>

### Rock Physics Lab (RPL)

**Location:** SR1, Rm 104-108, B-8

**Function:** We conduct world class research on Seismic Rock Physics, include mainly: 1. Seismic properties of hydrocarbon fluids at in-situ conditions; 2. Seismic properties of rocks from conventional reservoirs (sands, sandstone, tight gas sands and carbonates); 3. All kinds of rocks and fluids from unconventional reservoirs: oil shale, shale gas, shale oil, coal, gas hydrate and heavy oil sands; 4. Rock parameters, seismic velocities, modulus, include LF measurement, rock mechanics; 5. Experimental and theoretical investigation on poro-elasticity (include digital rock modeling), velocity dispersion, and wave attenuation, elastic anisotropy, fractured reservoir, static and dynamic elasticity; 6. Seismic attributes as direct hydrocarbon indicator (DHI), reservoir delineation, 4-D seismic monitoring, manage unconventional reservoirs; 7. Training graduate students.

**Faculty Host:** Dr. De-Hua Han

**Student host:** Qin Xuan (PhD)

**Website:** <http://www.rpl.uh.edu/>

# EAS LAB TOURS

## SR1, 2<sup>nd</sup> Floor

### GeoRS (Geological Remote Sensing) Lab

**Location:** SR1 Room 234

**Function:** GeoRS group combines field hyperspectral and LiDAR imaging, GPR with traditional geologic mapping and for the precise 3D imaging of outcrops. Applications range from mapping distribution of river channels, developing 3D fluid flow models, understanding rock alterations and sulphide mineralization and reservoir analog studies. Remote sensing and GIS research lab (GeoRS) include various hardware and software.

**Faculty host:** Dr. Shuhab Khan

**Website:** <http://www.uh.edu/~sdkhan/>

## SR1, 3<sup>rd</sup> Floor

### MC-ICP-MS Geo-Cosmochemistry Lab

**Location:** SR1 Room 317

**Function:** Isotopic and trace element analysis of terrestrial and extraterrestrial rocks and minerals for radiometric dating and petrological evolution studies, including petroleum reservoir rock characterization.

**Faculty hosts:** Dr. Tom Lapen, Minako Righter

**Website:** <https://mynsm.uh.edu/groups/mcicpms/>

### PGE Geochemistry Lab

**Location:** SR1 Room 317

**Function:** Re–Os isotope and PGE analysis of shale and oil for absolute dating and source tracing.

**Faculty host:** Dr. Alan Brandon

# EAS LAB TOURS

## Mudstones and Carbonate Research Group

**Location:** SR1 Room 338b

**Function:** This lab focuses on the study of both marine and continental carbonates and fine grained siliciclastic successions. The primary goal of the lab is to produce sedimentologic, stratigraphic and geochemical data from these archives to investigate 1) Ancient changes in ocean chemistry, 2) Ancient changes in atmosphere chemistry and 3) The effects of changing environmental conditions on marine biogeochemistry. We also focus on Quaternary climate variability through the use of pit/lake sediments and speleothems. Our research also emphasizes oil and gas industry applications such as the characterization and evaluation of carbonates and black shales as non-conventional oil and gas reservoirs and source rocks.

**Faculty host:** Dr. Juan C. Silva-Tamayo

**Student host:** Manuel Paez, Lucien Nana Yobo

**Website:** <http://silvatamayo.wix.com/carbonategroup/>

## SR1, 4<sup>th</sup> Floor

### Atmospheric Chemistry Lab (ICAS LAB)

**Location:** SR1, Room 430

**Function:** My lab is a component of the Institute for Climate and Atmospheric Science. I study atmospheric mercury in Houston, which has elevated levels and time periods of extremely high values. I have instrumentation atop Moody Tower on the UH campus and at the UH Coastal Center. This is a \$1M laboratory, which we utilize to sample emissions sources and study photochemistry in Houston. I also have a program in Houston/Fort Worth examining fugitive emissions of CO<sub>2</sub> and CH<sub>4</sub> from gas and oil extraction, distribution and storage. We also have a unique ability to measure  $\delta^{18}$  in CH<sub>4</sub> to distinguish contributions from different sources.

**Faculty host:** Dr. Robert Talbot

**Student hosts:** Shuting Yang

**Website:** <http://icas.uh.edu/>

# EAS LAB TOURS

## SR1, 4<sup>th</sup> Floor

### Caribbean Basins, Tectonics, and Hydrocarbons (CBTH)

**Location:** SR1, Room 427

**Function:** CBTH is a 21-company consortium and one of the largest industry consortia at UH with the goal of cutting edge academic research and facilitating oil exploration in the geographic and oil-rich region of the Gulf of Mexico, Caribbean, northern South America, and equatorial Atlantic margins in South America and Africa. The room 427 work area provides workstation, server, software, GIS databasing, and printing capabilities to 12 UH MS and PhD graduate research assistants, 7 UH undergraduate research assistants supported as RAs by the project, and five members of the UH Imperial Barrel Award team who are part of a UH graduate level course in the spring semester.

**Faculty host:** Dr. Paul Mann

**Student host:** Sabrina Martinez.

**Website:** <http://cbth.uh.edu/index.php/>



Undergraduate Field Methods class, Boquillas Canyon, Big Bend, TX.

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*For more information:*

[www.geosc.uh.edu/research-institutes-programs/index.php](http://www.geosc.uh.edu/research-institutes-programs/index.php)

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## Who we are

The Department of Earth and Atmospheric Sciences at the University of Houston has a wide range of research programs central to the earth sciences. These include sedimentology, carbonate petrology, sequence stratigraphy, micropaleontology, structural geology, tectonics, geodynamics, marine geology, petroleum systems and geochemistry, inorganic geochemistry, isotope geochemistry, igneous petrology, thermochronology, GIS, remote sensing, seismology, applied geophysics, applied rock physics, whole earth geophysics, potential fields, hydrology, atmospheric sciences, climate change, and air pollution sciences.

The Department offers M.S., and Ph.D. degrees in Geology, Geophysics and Atmospheric Sciences, a B.S. in Geology, Geophysics and Environmental Sciences, and a B.A. in Earth Sciences. Fieldwork is a major component of all degree programs. The Department also offers Professional M.S. programs in Petroleum Geology and Petroleum Geophysics that are offered at convenient hours for professional geoscientists working in industry or aspiring for a professional position within the petroleum industry.

## Contact Us

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Science & Research 1 Building, Room 312  
Houston, TX 77204-5007

Phone: 713-743-3399

Web: <http://www.eas.uh.edu>

# COMMITTEE BIO

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**Dr. Regina Capuano**



**Faculty Advisor for Student Research Day.** She is an Associate Professor of Geosciences at the UH. She completed her M.S. and Ph.D. in Geology/Hydrology at the University of Arizona. Her recent research interests are sedimentary basin and oil field geochemistry and hydrology.

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**Elita De Abreu**



**Committee Chair:** She joined the Exploration team at Petrobras in 2006 where she performed quantitative seismic interpretation and rock physics simulation. Currently Elita is pursuing her Ph.D. on attributes for seismostratigraphy interpretation at UH.

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**Proma Bhattacharyya**



Received an M.S. in geology from the University of New Mexico in Satellite Imagery Evaluation of Soil Moisture Variability. For her Ph.D. at UH, she is looking into point bar and associated geomorphic elements with Ground Penetrating Radar (GPR) and Airborne Light Detection and Ranging (LiDAR).

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**Abigail Corbett**



She started her graduate career at the UH fall 2013 and is currently pursuing her Ph.D. in Atmospheric Sciences. Her current research involves analyzing global methane satellite data to study the effect of the tropospheric biennial oscillation.

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**Denise Furtado**



She worked as a Geoscientist on the Onshore Exploration Team at BP, developing geological and geophysical analysis. Currently, she is enrolled in the Professional Master degree at UH in Petroleum Geophysics and looking for an opportunity in the Oil and Gas industry.

# COMMITTEE BIO

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**Jay Shelton**



He received his B.S. degree in Atmospheric Sciences from The Ohio State University in 2013 and is pursuing an M.S. at UH. His thesis focuses on variations in the structure and behavior of squall line thunderstorms due to changes in microphysical and boundary layer processes.

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**Riddhi Dave**



She received her M.S. from University of Tennessee, Knoxville on near-earth asteroids and thermal modeling. Currently pursuing a Ph.D. in Seismic Geophysics, her research interests are seismic inversion techniques, seismic constraints on continental evolution and structure of Earth.

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**Atif Hariz**



He received his B.S. degree in Geology from the American University of Beirut and is currently pursuing his M.S. in Geology at UH. His thesis includes the study and identification of hurricane washovers in South Texas. He also works part-time as an environmental geologist.

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**Pin Lin**



She received a M.S. in Geology and Geophysics from Missouri University of Science and Technology. Her Ph.D. study with CBTH is using well, seismic reflection and gravity data to examine the V-shaped area of Jurassic oceanic crust in the southeastern Gulf of Mexico.

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**Wenyuan Zhang**



He has experience in seismic interpretation, petrophysics, geostatistics, basin, petroleum system and geochemical analysis, and fluid flow modeling. Currently pursuing a Ph.D. with Allied Geophysics lab, his research interests are seismic attributes, multicomponent seismic modeling and inversion.

# MEET THE JUDGES

## FACULTY

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**Dr. Yingcai Zheng**



is an Assistant Professor in seismic imaging and reservoir characterization, at UH. He obtained his Ph.D. in Geophysics from University of California Santa Cruz in 2007.

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**Dr. Julia Wellner**



is an Assistant Professor at UH in Stratigraphy, Sedimentology, and Glacial Processes. She received her Ph.D. from Rice University in 2001. Her research interests are Plio-Pleistocene sequence stratigraphy from 3D seismic data, Holocene climate of antarctic Ice Sheet history since the Eocene.

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**Dr. Evgeni M. Chesnokov**



received his Ph.D. in 1974 in geophysics from Moscow State University. Currently he is a Professor at UH. His research interests include investigations of the effective physical characteristics and wave propagation in a random porous fractured media.

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**Dr. Juan C. Silva-Tamayo**



is an Assistant Professor of Sedimentary and Environmental Geology at UH. He received his Ph.D. in Isotope Geochemistry at the University of Berne, Switzerland in 2009. His research interests include sedimentary geology, stratigraphy and isotope geochemistry.

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**Dr. Robert Talbot**



is a Professor of Atmospheric Chemistry at UH. He received his Ph.D. in Atmospheric Chemistry at the University of Wisconsin-Madison, 1981. His research interests include sources, sinks, and chemical cycling of atmospheric mercury on regional-to-global scales.

# MEET THE JUDGES

## FACULTY

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**Dr. Margarete Jadamec**



is an Assistant Professor of Geodynamics at UH. She received her Ph.D. from the University of California, Davis in 2009. Her research interests include numerical modeling of subduction, mantle flow, and three-dimensional data visualization.

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**Dr. William Sager**



is a Professor of Geophysics at UH. He received his Ph.D. in Marine Geophysics at the University of Hawaii in 1983. His research interest include Marine geophysics, High-resolution marine geophysics, and Plate tectonics, among others.

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**Dr. Yunsoo Choi**



received a Ph.D. in Atmospheric Chemistry in 2007 from Georgia Institute of Technology. He currently works at UH as an Assistant Professor. His research interests are atmospheric chemistry, air quality modeling, satellite remote sensing

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**Dr. Stuart Hall**



is currently a Professor of Geophysics, Potential Fields at UH. He received his Ph.D. in Geophysics from the University of Newcastle in 1976. His research interests include paleomagnetic investigations of tectonic problems, and use of geophysical data to investigate the small ocean basins and the structure of mid-ocean spreading centers.

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**Dr. Anirban Roy**



is a postdoctoral fellow at UH. He obtained his Ph.D. from the Center for Atmospheric Sciences at Carnegie Mellon University. His current research focuses on emissions and air quality impacts from gasoline and diesel motor vehicles.

# MEET THE JUDGES

## FACULTY

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### Dr. Bernhard Rappenglueck

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is an Associate Professor of Atmospheric Chemistry and Meteorology at the UH. He received his Ph.D. in Physics from University of Munich (1996). His research areas include the quantification of trace gas budgets, iosphere-atmosphere exchange, boundary layer processes and mesoscale meteorology and application and development of chemistry-transport modeling.

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### Dr. Jinny Sisson

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is currently at the UH where she is a Research Associate Professor of Geology, Director of Summer Field Geology, and Co-director of the Geoscience Learning Center. She received her Ph.D. from Princeton University in 1981. Her research interests are field oriented petrotectonic studies, fluid inclusion studies and boron geochemistry of metamorphic rocks.

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### Dr. Robert Stewart

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received his B.Sc. from the University of Toronto in physics and a Ph.D. in geophysics from the Massachusetts Institute of Technology. In 2008, he joined UH as a Professor of Geophysics, holds the Cullen Chair in Exploration Geophysics, and is Director of the Allied Geophysical Laboratories.

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### Dr. Don Van Nieuwenhuise

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is director of UH's Petroleum Geosciences Programs and a Research Associate Professor. His previous industry experience includes 22 years with Amoco and Mobil as a petroleum geologist, a stratigrapher, and several management positions. He received his M.S. degree from UH (1977) and his Ph.D. from the University of South Carolina (1978).

# MEET THE JUDGES

## INDUSTRY

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### Dr. Robert Tscherny

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is a geologist and basin modeler at ConocoPhillips Unconventional growth exploration team. He received his Ph.D. from the RWTH Aachen (Germany). His focus is on basin analyses, geomechanics, pore pressure prediction, geochemistry, fluid flow modeling, sequential restorations, and hydrocarbon charge risk.

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### Dr. Joan F. Flinch

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is currently Geology Manager at Repsol USA stationed in The Woodlands, Texas. In 1994 he received his Ph.D. in Geology and Geophysics from Rice University, Houston with the dissertation "Structural Evolution of the Gibraltar Arc" directed by Professor A. W. Bally.

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### Dr. Steve Naruk

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is the Structural Geology Principal Technical Expert and Research Team Leader for Shell International E&P Inc. He holds a B.S. in geology and geophysics from Yale University, and an M.S. and Ph.D. in structural geology and tectonics from The University of Arizona.

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### Lisa Buckner

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is geophysicist with over 30 years of seismic data processing industry experience. She received an M.S. in Geophysics from UH (1991). She was recognized with the Outstanding Alumnus Award by the UH student societies in 2013 and the UH EAS Dept. in 2015.

# MEET THE JUDGES

## INDUSTRY

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**Elizabeth Beal**



has been in the seismic industry for seventeen years. She graduated from the Colorado School of Mines in 1999 with an undergraduate degree in geological engineering. She has been at Shell for seven years processing mainly ocean bottom seismic surveys and 4D. She is currently team lead for the US Onshore Processing and Marine Special Project Processing at Shell.

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**Dr. Peter Duncan**



is Founder and Co-Chairman of MicroSeismic, Inc. a Houston based oil field service company specializing in hydraulic fracture stimulation surveillance and evaluation. He holds a Ph.D. in Geophysics from the University of Toronto. He was the Fall 2008 SEG/AAPG Distinguished Lecturer speaking on the subject of Passive Seismic at 45 venues around the world.

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**Lance Wood**



is currently the Science and Operations Officer at the National Weather Service (NWS) office in League City, TX. He also has experience as a trade floor meteorologist with Duke Energy. He is a graduate of Texas A&M University; receiving both a B.S. and M.S. in Meteorology.

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**Vance Fairchild**



began his career in the industry working in environmental risk management for a large mid-stream energy company. He then transitioned to professional services, serving as President of an environmental and engineering consulting company.

# MEET THE JUDGES

## INDUSTRY

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**Derek Ortt**



earned a B.S. degree in meteorology and applied mathematics and M.S. in meteorology from the University of Miami in 2007. His thesis was titled "Effects of Environmental Water Vapor on Tropical Cyclone Structure and Intensity". In 2010, Derek accepted a position as a Tropical Meteorologist with ImpactWeather, which was acquired by StormGeo in 2012.

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**Victor Ogunmola**



has obtained M.S. degrees from OAU, Ile Ife-Nigeria (Petroleum and Sedimentary Geology) and University of Aberdeen, Scotland (Petroleum Geology) in 2005 and 2006 respectively. He is currently a Senior Geoscientist at ExxonMobil. Outside of ExxonMobil, he is a dedicated volunteer and leader.

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**Dr. Malleswar Yenugu**



has a Ph.D. in Geophysics from UH in 2014. He is currently working as a geoscience consultant for Petrabytes in Houston. His research interests include integration of cores, logs, seismic and production data for oil and gas reservoir characterization.

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**Dr. Tat Banga**



is currently a Geologist with Shell Exploration. He received his Ph.D. from the UH conducting a multi-disciplinary study of the origin and migration of Gulf of Mexico Oil.